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ABSTRACT

The value of H. Myklebust's Picture Story Language Test (PSLT) was examined in a study of differences in written expression between 85 learning disabled (LD) and 125 nonlearning disabled elementary grade children and characteristics of oral expression of the LD students. Using the PSLT, written and oral language samples were obtained from the students and analyzed for such variables as productivity and syntax. Though both LD and non LD Ss made the same types and percentages of errors, non LD children wrote with greater overall correctness and used twice as many words and sentences as LD students. The analysis of oral expression indicated LD Ss made errors in additions of words, omissions, substitutions, and word order in that frequency order. Results suggested that instruction of LD students should focus on adequate oral expression in the earlier grades and expansion of the quantity of words and sentences produced in the upper grades. An additional analysis of the PSLT led to the conclusion that the test is inappropriate for use above grade 2 and does not provide adequate diagnostic information. (An alternative diagnostic approach to written language is provided.) (BP)

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CHARACTERISTICS OF WRITTEN EXPRESSION OF LEARNING DISABLED AND NON-LEARNING DISABLED ELEMENTARY SCHOOL STUDENTS

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Written expression has been mandated by Public Law 94-142 as one of the seven basic academic areas in which a student may be diagnosed as learning disabled (Federal Register, 1976, p. 65083). In addition to informal assessment (Zigmond, 1976), the only individualized standardized instrument for diagnosis of a student's product of written expression is the Picture Story Language Test (PSLT) (Myklebust, 1965). While some data exist in describing learning disabled children with the PSLT, these data were obtained from students in grades three and four who were classified as Learning Disabled (LD) by the use of the Myklebust Learning Quotient.

To determine the usefulness of the PSLT with contemporary students in the elementary grades, this exploratory study was conducted. Differences in written expression between school-determined LD and non-learning disabled (N-LD) pupils were investigated as were differences between oral and written expression of the LD students.

Characteristics of written expression of pupils in the regular classroom have been described in detail by Hunt (1965), by O'Donnell, Griffin, and Norris (1967) and by Shane and Mulry (1963). These surveys of the literature and the studies conducted were concerned both with characteristics of written expression and with the relationships between oral and written expression of students in the regular classroom.

Two school systems were used in the study. One is a township system near

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a large metropolitan city; the other is a moderate size system in a rural area in which a moderate size university is located. Three schools were selected to serve as the source for the written language samples of the Non-LD students in grades two, four, and six. In order for the samples to be as representative as possible of the "average" student in these grades, only those students whose reading achievement test scores were average were used. Different types of achievement scores were used among the schools. In one school only those students with stanines of 4, 5, or 6 in reading were selected. In another school, the "average" students were defined as those whose reading grade equivalent scores fell within one-half year either above or below the student's current grade level. In the third school, since no test scores were available, the "average" students were those who were reading in the level of the basal reader that represented achievement within one-half year either above or below the student's current grade level. There were no significant differences observed between the two systems on any of the variables used in this study. The written language samples were obtained from the Non-LD students by the regular classroom teacher using the PSLT in small groups in the regular classroom during the language arts lesson.

The LD students used in this study were those students who had been determined as learning disabled by school personnel according to precedures specified by the state department of public instruction. All LD students in this study were receiving the services of either an itinerant or a part-time resource room teacher. The students were mainstreamed into the regular classroom in grades two, four, or six. Using the PSLT, the written language samples from the LD students were obtained by the resource teachers and this writer. A counter-

balanced design was used to avoid the effect of practice with the picture. That is, half of the students wrote their response to the picture first while the other half related their first response orally. The oral and written samples were not obtained on the same day. The oral samples were recorded on cassettes and were later transcribed by the writer and scored by the same criteria as the written samples. Garbles and repeated utterances ("uh . . . a . . . a . . ." etc.) were neither counted nor scored as suggested by O'Donnell et. al. (1967). All scoring was done by this writer.

The data were frequency counts which can be considered as an interval scale of measurement. To determine if parametric statistics would be appropriate, histograms of the data were plotted for analysis. Inspection revealed that the data were not normally distributed. Therefore, nonparametric statistics were chosen. The median test was used to determine if the LD and the Non-LD written samples were drawn from a population with equal medians. Siegel (1956) noted that the variables should be measured at least on an ordinal scale for this statistic to be used. Frequency counts meet this requirement. Likewise, the Wilcoxon matched-pairs test was used to determine differences between the oral samples and the written samples of the LD students using correlated data. The computer statistical package used for the analyses was the Statistical Package for Social Sciences, SPSS-10 Release 7.01 (Nie, et. al., 1975).

From a pool of 85 LD students from whom a written expression sample was obtained, 77 of these students produced both oral and written samples. Of the 85 students, individual WISC scores were available for 44%. The average Verbal Scale IQ was 88 (standard deviation (SD) was 10 points), the average Performance Scale IQ was 94 (SD 12), and the average Full Scale IQ was 90 (SD 9). For this

study the LD students can be described intellectually as low average with the verbal score only slightly lower than the performance score. The average reading grade equivalent score obtained from a variety of test scores was 2.3, which falls one and one-half years below the average grade placement of 3.8. In other words, the average LD student in this study was of low average ability and functioning one and one-half years below an average grade placement of 3.8. These characteristics are probably representative of many school-determined LD students. These students might best be described as only mildly handicapped.

The PSLT variables determined for use in the study were 1) Productivity (Total Words, Total Sentences, and Words per Sentence); 2) Syntax (Word usage) consisting of Additions, Omissions, Substitutions, Word Order, and Total Errors; 3) Morphology (Word Endings) consisting of Additions, Omissions, Substitutions, and Total Errors; 4) Punctuation consisting of Additions, Omissions, Substitutions, and Total Errors; 5) Syntax Quotient, a measure of the "correctness" of overall written expression; 6) Total Additions, Total Omissions, Total Substitutions, and Total Word Order Errors; and 7) Grand Total of all errors.

RESULTS

Characteristics of written expression for Non-LD students. Table 1 gives the basic information for the Non-LD group of 124 students. This table gives the number and percentage of Non-LD students who made errors and the median errors made in grades 2, 4, and 6.

A gradual increase in the Syntax Quotient is noted across the three grades suggesting an improvement in the correctness of written expression as the student matures. All three measures of Productivity (total words, total sentences, and words per sentence) show an increase at each higher grade level. Obviously, as

students mature, they write more words. In terms of Syntax, the percentage of students making errors increases across the three grade levels for additions and for omissions errors, but peaks at grade 4 for substitutions and total word usage errors.

More students made errors in word order in grade 2 than in grade 4, where only one student made an error, or in grade 6, where only 2 students made an error. Within Syntax (word usage) the sequence of words appears to be the least frequent error made by the Non-LD students. Generally, the most frequent syntax errors are in the addition and in the omission of necessary words.

While the medians of the different types of syntax errors do not change significantly from grade 2 to grade 4 or from grade 4 to grade 6, the percentage of students making errors varies by grade. As more words are written, a higher percentage of students makes errors in additions and omissions.

In terms of Morphology as measured by word endings, most errors were omissions. These errors are seen less frequently as the writer matures. Possibly as oral language develops the written expression reflects this maturity. Errors of additions on word endings were quite infrequent being made by only one second grader, three fourth graders, and no sixth graders. Only two sixth graders (6%) made a substitution error. Morphology, then, does not appear to display a high frequency error rate for Non-LD students. Most errors were made by the relatively inexperienced writers.

Punctuation was by far the most frequent source of errors for all grade levels. The percentage of students making punctuation errors remained fairly constant in grades 2, 4, and 6. The most frequent errors were in the omissions of capitols and periods, a skill taught in the first grade. The omission of the

comma and the question mark also is of relatively high frequency, especially in the 4th grade. Adding unnecessary punctuation was seen to increase as the grade level increased. Substitutions of an incorrect punctuation mark for a correct punctuation mark was only made by four students in all three grades.

The total errors indicate that necessary words, word endings, and punctuations are often omitted in the written expression of elementary level students. Errors of additions are seen also at a relatively high frequency. Over 90% of all Non-LD students do make some error in these categories.

Table 2 gives the basic information when all three grade levels of 124 students are combined for the Non-LD group to obtain a picture of written expression characteristics of the elementary level Non-LD student. The median Syntax Quotient is 94. These Non-LD students wrote a total of 48 words at the median level with six sentences of nine words.

The most frequent Syntax error, made by 38%, was in additions while approximately one-fourth of the students made errors in omissions and substitutions. Only seven students (6%) made errors of word order. More than half (62%) made errors in Syntax.

Fewer errors were noted under Morphology. The median level never reached a score of 1 for any subcategory nor for total number of errors within morphology. The most frequent word ending error was seen in omissions (23%) while only 27% of the students made errors in the morphology category.

Most errors made by the Non-LD group were errors of Punctuation, and these errors were primarily those of omission of capital letters (76%) and of periods (72%). One-fourth (26%) omitted other necessary punctuation marks, usually commas and the question mark. Only 16% made addition errors while only four students

(3%) made substitution erros. Considering the total number of errors in this category, 86% made a median level of four errors in punctuation.

Viewing all possible types of errors combined, 94% made a median level of almost three errors in written expression. Most of the errors were omissions followed in order of frequency by additions, substitutions, and word order.

Characteristics of written expression of LD students. Table 2 also gives the basic information for the 85 LD students used in the analysis. The median level Syntax Quotient is 87. The LD students wrote approximately 2½ sentences of 7½ words in each sentence using 18 total words in their stories compared to 6 sentences of 9 words for 48 total words written by the Non-LD group.

Most errors of Syntax were errors of omissions made by 42% while the Non-LD group made most errors in additions. For the LD group, in order of frequency, the other errors were in additions and substitutions. Only one student made an error in word order. Over half of the LD group (64%) made a median level of one error of some type within Syntax representing 6% of the total words written.

As with the Non-LD group, fewer errors were noted in the LD group within Morphology. Again, most of the errors were omissions made by 26%. Only 2 students made substitution errors, while no addition errors were noted. Slightly over one-fourth of the students (28%) made an error in word endings representing 1% of the total words written. Approximately the same percentage of LD and Non-LD students make errors in Morphology and the most frequent error by both groups is that of omissions.

Most errors made by the LD group were Punctuation errors, and most punctuation errors were the omission of capital letters and of periods. The same is true for the Non-LD group. For the LD group, other omission errors (commas and

question marks) were next highest in frequency followed by additions with no substitution errors noted. Considering all errors in this category, 84% of the LD students made a median level of 2 punctuation errors while in the Non-LD group, 86% made a median level of 4 errors in punctuation.

Combining all error types, 86% of the LD students made some type of error. In order of frequency they were omissions, additions, substitutions, and word order. While the same order was noted for the Non-LD group, more Non-LD students (94%) made errors than LD students (86%).

Differences in written expression between LD and Non-LD students. Table 2 gives the Chi Square statistic and the p values of the Median Test (Siegel, 1956). Statistically significant differences were noted between the LD and the Non-LD groups on these variables:

1. Syntax Quotient
2. Productivity - Total Words
   - Total Sentences
   - Total words-per-sentence
3. Syntax - Omissions
4. Punctuation - Omissions (capitals, periods)
   - Total Punctuation errors

The Non-LD group wrote with greater overall correctness of written expression. This group wrote over twice as many words and sentences as the LD group. There is a striking similarity between the Non-LD and the LD groups when one inspects the percentage of students making the various combined errors and the ranking of the percentages. Both groups appear to make the same types of errors by similar percentages of students within each group; the LD group, however,

makes significantly more errors in omissions of words and in punctuation.

Characteristics of oral expression of LD students. The second part of the study investigated differences between oral and written expression within the LD group. A counterbalanced design was used wherein half of the group responded orally to the picture first to eliminate any practice effect. The oral responses were recorded, transcribed, and scored as though the story had been written. Punctuation was not scored. The quality of the recordings was such that analysis of additions to word endings was not possible because of low volume and quality of the recorder used.

Table 3 gives a summary of the oral responses compared to the written responses and the analysis of differences between oral and written responses within the LD group. The Wilcoxon Matched-Pairs Test (Siegel, 1965) was performed on the results of 77 students from which both oral and written responses were available.

The Syntax Quotient of 90 in oral expression suggests that the correctness of oral expression in the LD group can be considered as low average. It would be expected that the oral SQ would be higher than the written SQ; such a difference was found and the difference was significant.

In Productivity, the LD group spoke a median level of 56 words in 6½ sentences with eight words per sentence. When the LD students orally responded, they used more than three times as many words as when they wrote. They also used approximately three times as many sentences and more words per sentence. The difference between oral and written responses is significant in all three areas of productivity.

In Syntax, more LD students made errors when they talked than when they wrote. Most of these errors in oral expression were the additions of words wherein when they wrote, most errors were in omissions of words. It would appear

that LD students, like most people, do not write in the same way they talk. The syntaxtical errors in oral expression were greater and they were significantly so when compared to their written errors. The only exception where no significant difference was noted was in word substitutions.

In Morphology, there were no significant differences between oral and written expression, but more students made errors when they wrote. The difficulty with the poor quality of the recording might account for a reduced scoring of errors in this category, however.

When the combined error types are considered in oral expression, all LD students made at least one error and the median level was five errors. Most errors were in additions followed in rank order of frequency by omissions, substitutions, and word order.

Implications for Instruction.

For Non-LD students instruction in written expression should emphasize the proper syntaxtical use of words with careful attention given toward not adding nor omitting words necessary for good word usage. Such errors are more likely as the students actually write more words. Instruction might best be presented for the total classroom through oral discussion and usage prior to applying the new skills in word usage in written expression.

In the earlier grade levels it appears that instruction might focus on adequate oral expression with prerequisite inquiry of skills in auditory discrimination and visual memory. These prerequisite skills must be directly related to linguistic symbols used in written expression. Instruction along these lines should encorporate both oral and written use of word endings and their proper grammatical usage. The direct relationship to misspellings is apparent.

Most errors in word endings were made by the younder more inexperienced writers, It is at these earlier grade levels, then, that the instruction should focus on the skills to allow for correct writing of morphological units.

While punctuation is taught in the first grade, these data point out that sixth graders have in many instances not mastered the basic skills of punctuation. Instruction and remediation in punctuation should be a continuous focus of instruction at all grade levels throughout the elementary school years.

Because of the high frequency of omissions in the mechanics of Syntax, Morphology, and Punctuation, instruction should focus on insuring that students learn when to use the tools of accurate written expression. Such instruction should begin at an oral level so that spoken sentences "sound right" and make sense for logical auditory comprehension. Then the study of expressing what was correct auditorily by writing it down would follow. Analysis of vocabulary, word usage, and sentence structure would aid in developing more accurate written expression with fewer omissions. Reversing the procedure to allow oral reading of what was written quickly points out the errors of omissions.

While errors of unnecessary additions were less frequent than errors of omissions, the percentage of students making such errors appears high enough to be of concern to teachers. The general procedures suggested above would be quite appropriate for dealing with unnecessary extraneous words.

For the LD students, the data suggest that they write with less overall correctness as indicated by a lower syntax quotient when compared with their Non-LD peers. They also write fewer words and sentences; their productivity is lower in comparison. Instruction should focus on methods of expanding the quantity of words and sentences. Instruction in the use of increasing modifiers and of adding subordinate clauses would allow for an increase in words and sentences.

The LD students made significantly greater errors in omissions for syntax and for punctuation. General procedures suggested for the Non-LD students would be equally appropriate for the LD students. However, the emphasis should dwell possibly at greater length on developing accurate oral expression with its conjoint requisite of auditory comprehension. The necessity for insuring accurate oral usage of language is pointed out by the higher number of errors noted in oral expression and the higher percentage of LD students who make such oral errors in speaking as compared to their writing. The reduced syntatical and morphological errors must be viewed in light of the low productivity of their writing.

The usefulness of the PSLT.

While this study has made an investigation of written expression for LD and Non-LD student, it becomes quite apparent that the diagnostic tool used, the PSLT, does not allow for an accurate and complete diagnostic appraisal. The low reliability, lack of validity, and inadequate norming procedures have been pointed out in critiques in the Buros Mental Measurement Yearbook (Anastasiow, 1972; Perkins, 1972). Equally as important is the imcompleteness of diagnostic information afforded by the use of the PSLT. Scoring procedures can only be considered as "loose" (Zigmond, 1976). Larson and Wallace (1978) and Hammill (1975) also suggest that its usefulness is quite limited.

Diagnosticians have suspected that the stimulus picture does not elicit an accurate representation of written expression for the contemporary LD and Non-LD students. For minority students or students of a culturally different background, the picture is certainly less than motivating.

An investigation was conducted by this writer to compare the productivity of today's students' written expression under four different task demands. Task A used the PSLT picture, task B used a picture chosen by the teacher as being relevant to the unique interest of a given grade level (Zigmond, 1976; Poteet, 1978), Task C used a short silent cartoon named "The Wall", task D was a letter written to a friend who had recently moved away. The median total words written under these four task demands are presented below. Thirty students in each grade level were used for these data.

Grade Level	Task A	B	C	D
2	27	24	23	16
3	--	39	--	--
4	54	77	82	47
5	--	125	--	--
6	78	126	113	66

Since Myklebust presented his norms in terms of means, this statistic was computed for comparison to his norm group. The mean total words are given below.

Grade Level	Norms	Task A	B	C	D
2	28	27	25	22	19
3	--	--	54	--	--
4	90	60	94	86	52
5	--	--	147	--	--
6	116	92	140	115	73

Only Task B, the teacher chosen picture, was given to grade 3 and 5 to obtain

an indication of developmental trends. These data suggest that today's students enrolled in regular classrooms write fewer words to the PSLT picture (see Task A) in grades 4 and 6 than were written 13 years ago when the PSLT norms were published. The similarity noted at grade 2 only suggests that the PSLT elicits a similar number of words as represented in the norms.

Task B elicits more words from today's students at all other grade levels than the PSLT. Task B also elicits more productivity than either a cartoon film or a personal letter written to a friend.

While the interpretation of these data should only be viewed as tenative, the data do suggest that the PSLT is inappropriate for use above grade 2 for today's students. It would be anticipated that the same trend would continue for students in higher grades at the junior and senior high school levels. It is rather apparent, with this small sample, that use of the PSLT would not give an accurate representation of student's skills in written expression.

As mentioned previously, the PSLT is restricted in the diagnostic information made available to the diagnostician. The following outline is presented to represent a more complete diagnostic approach to the investigation of written expression (Poteet, 1978):

I. Spelling Error Patterns

- A. Motor
- B. Semantic
- C. Rules/Morphology
- D. Visual
- E. Auditory

II. Grammar

A. Capitalization

B. Punctuation

C. Syntax

1. Parts of speech
2. Agreement
3. Case
4. Pronoun reference
5. Word/phrase position
6. Parallelism
7. Abbreviations and use of numerals
8. The paragraph

III. Ideation

A. Substance

B. Productivity

C. Comprehensibility

D. Reality

E. Style

1. Type of composition (Narrative, Descriptive, Expository)
2. Sentence Structure
3. Tone of the writer and Distance to the reader
4. Word Choice

a. Formality
b. Complexity
c. Descriptiveness
d. Quantity
e. Effectiveness

The analysis of written expression for the three basic types of compositions (Narrative, Descriptive, or Expository), using the above outline enables a more complete diagnostic interpretation of the writer's strengths and weaknesses (Poteet, 1978).

Table 1

Median errors, percentages, and number of students making errors, and median syntax quotient for variables of interest by Non-LD students in grades two, four, and six.

	Grade 2 (N=59)			Grade 4 (N=33)			Grade 6 (N=32)		
	N	%	Median	N	%	Median	N	%	Median
Syntax Quotient	59	100%	90.417	33	100	94.875	32	100	97.500
Productivity									
Total Words	59	100	27.000	33	100	75.750	32	100	143.500
Total Sentences	59	100	3.412	33	100	7.333	32	100	13.100
Words-per-sentence	59	100	7.475	33	100	9.500	32	100	11.350
Syntax (Word Usage)									
Additions	18	30	.220	14	42	.368	15	47	.441
Omissions	12	20	.128	10	30	.217	12	38	.300
Substitutions	6	10	.057	15	45	.417	9	28	.196
Word Order	4	7	.036	1	3	.016	2	6	.067
Total	32	54	.692	24	73	1.438	21	66	1.333
Morphology (word endings)									
Additions	1	2	.009	3	9	.050	0	0	.000
Omissions	17	29	.202	8	24	.160	4	12	.071
Substitutions	0	0	.000	0	0	.000	2	6	.033
Total	18	30	.220	10	30	.217	6	19	.115
Punctuation									
Additions	7	12	.067	5	15	.089	8	25	.167
Omissions-Capitals	45	76	1.719	25	76	1.813	24	75	1.700
Omissions-Periods	44	75	2.188	23	70	1.857	22	69	1.250
Omissions-Commas & question marks	7	12	.067	17	52	.600	8	25	.167
Substitutions	0	0	.000	3	9	.050	1	3	.065
Total	52	88	4.286	28	85	5.125	26	81	4.000
Total									
Additions	18	30	.220	14	42	.386	15	47	.441
Omissions	47	80	1.727	27	82	2.313	26	81	2.000
Substitutions	7	12	.067	15	45	.417	12	38	.300
Word Order	4	7	.036	1	3	.016	1	3	.032
Grand Total	53	90	2.364	32	100	3.600	32	100	3.167

Table 2

Median errors, percent and number of students making errors, Chi-square and p values on variables of interest and median syntax quotients for LD and Non-LD elementary students in written expression

	LD (N=85)			Non-LD (N=124)			X^2	p
	N	%	Median	N	%	Median		
Syntax Quotient	85	100	87	124	100	94	13.783	0.000**
Productivity								
Total Words	85	100	18.000	124	100	48.000	25.666	0.000**
Total Sentences	85	100	2.400	124	100	6.000	37.834	0.000**
Words-per-sentence	85	100	7.500	124	100	9.050	5.039	0.025*
Syntax (Word Usage)								
Additions	26	31	.022	47	38	.305	.887	.346
Omissions	36	42	.367	34	27	.189	4.401	.036*
Substitutions	15	18	.107	30	24	.160	.921	.337
Word Order	1	1	.006	7	6	.030	1.656	.198
Total	54	64	1.075	77	62	1.056	.009	.923
Morphology (Word Endings)								
Additions	0	0	.000	4	3	.017	1.341	.247
Omissions	22	26	.175	29	23	.153	.062	.804
Substitutions	2	2	.012	2	2	.008	.017	.896
Total	24	28	.197	34	27	.189	.001	.978
Punctuations								
Additions	8	9	.052	20	16	.096	1.425	.233
Omissions-Capitals	56	66	1.019	94	76	1.741	7.581	.006*
Omissions-Periods	60	71	1.148	89	72	1.816	4.558	.033*
Omissions-Commas & questions marks	13	15	.090	32	26	.071	2.706	.100
Substitutions	0	0	.000	4	3	.017	1.341	.247
Total	71	84	2.375	106	86	4.433	10.493	.001**
Totals								
Additions	26	31	.220	47	38	.305	.887	.346
Omissions	68	80	1.575	100	81	1.978	2.715	.099
Substitutions	18	21	.134	34	27	.189	.744	.388
Word Order	1	1	.006	6	5	.025	1.111	.292
Grand Total	73	86	2.225	117	94	2.929	1.956	.162

* p = less than .05
** p = less than .01

Table 3

Median errors, percent and number of LD students making errors in oral and written expression and z and p values of the Wilcoxon Matched-Pairs Test.

	Oral (N=77)			Written (N=85)				
	N	%	Median	N	%	Median	z	p
Syntax Quotient	77	100	90.917	85	100	87.000	-2.936	0.003**
Productivity								
Total Words	77	100	56.000	85	100	18.000	-6.733	0.000**
Total Sentences	77	100	6.536	85	100	2.400	-6.288	0.000**
Words-per-sentence	77	100	8.037	85	100	7.500	-1.853	0.064
Syntax (Word Usage)								
Additions	59	77	3.250	26	31	.022	-6.245	0.000**
Omissions	39	51	.533	36	42	.367	-2.333	0.020
Substitutions	19	25	.164	15	18	.107	-1.127	0.260
Word Order	7	9	.050	1	1	.006	-2.366	0.018*
Total	69	90	5.000	54	64	1.075	-6.605	0.000**
Morphology (Word Endings)								
Additions	0	0	.000	0	0	.000	.000	
Omissions	10	13	.075	22	26	.175	-1.503	0.133
Substitutions	1	1	.007	2	2	.012	-0.535	0.593
Total	11	14	.083	24	28	.197	-1.622	0.105
Total#								
Additions	58	75	3.083					
Omissions	43	56	.800					
Substitutions	20	26	.175					
Word Order	6	8	.042					
Total	77	100	5.313					

#-Total errors for the LD Written samples were included in Table 2 and include errors of punctuation. They are not used for comparison purposes since punctuation could not be scored on the oral responses.

* p= less than .05

** p= less than .01

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